

REMARKS

Claim 1 is being amended to recite that the aramid fibers are fibrillated, and have a surface area of at least 3 m²/g. This amendment introduces no new matter and is supported in the specification as filed, *inter alia*, on page 5, lines 9-10.

Rejection under 35 U.S.C. § 103(a)

Claims 1 and 3-7 were again rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,468,530 to Gotz et al. in view of U.S. Patent No. 5,830,395 to Vercesi et al. The Examiner relied on the reasons previously of record in the Office Action mailed on May 15, 2003. Applicants' arguments in the response to the previous Office Action are incorporated herein by reference.

In the May 15, 2003 Office Action, the Examiner stated that, although Gotz fails to teach specifications regarding aramid fibers, "glass fibers that are considered equivalent have diameter from 6 to 20 micrometers and average length between 0.08 and 0.5 mm". Applicants respectfully disagree with the Examiner's interpretation of Gotz as teaching that glass fibers and aramid fibers are equivalent. Applicants respectfully submit that merely because a material is in the form of a "fiber", fibers of different materials are not necessarily "equivalent" in physical or chemical properties. Glass fibers and aramid fibers are of significantly different composition and are not expected to have the same properties. Moreover, the fibers used in the presently claimed compositions and articles are fibrillated aramid fibers, and Gotz does not disclose or suggest fibrillated fibers.

Claim 8 was also rejected under Gotz in view of Vercesi. The Examiner stated in the May 15, 2003 Office Action that the cited references "taken as a whole teach a solidified hollow article and method of making a solidified hollow article". The Examiner also correctly stated that Gotz fails to teach "a hollow article with a length greater than 1 m", and that it would have been obvious to one of ordinary skill in the art at the time of the present invention to have modified the length of the hollow article.

Claim 9 was also rejected under Gotz in view of Vercesi and further in view of Van Ert et al., U.S. Patent No. 6,221,291. The Examiner stated that one of ordinary skill in the art would have recognized that a parison or pre-form for a blow molded

article incorporating a reinforcing fiber “is formed by co-extrusion of a virgin layer incorporating reinforcing fibers and a waste plastic material incorporating reinforcing fibers, in order to lower the cost of manufacturing of the blow molded article, as taught by Van Ert et al.”

Applicants respectfully submit that the Examiner has not fully appreciated Applicants’ invention. Applicants’ invention allows the manufacture of blow molded, solidified articles from materials not conventionally believed to be suitable for blow molding. As stated in U.S. Patent No. 5,028,372, which has already been incorporated into the present application by reference, fibrillated aramid fibers consist essentially of pulp-like short fibers comprised of bundles of sub-micron diameter fibrils. While Gotz does disclose thermoplastic molding materials reinforced with fibers, and mentions “aramid fibers” along with “carbon fibers, potassium titanate whiskers” and glass fibers, Gotz does not disclose, teach, or suggest fibrillated aramid fibers. Dimensions recited in Gotz for glass fibers are stated specifically to apply to glass fibers. No dimensions are provided for aramid fibers, and only glass fibers are used in the examples. Thus, Applicants submit that the mention of aramid fibers is not part of an enabling disclosure on the use of such fibers, and applicants further submit that there is no suggestion in Gotz that aramid fibers for use in the disclosed processes would be equivalent in properties or dimension, or used in equivalent quantities, to glass fibers. Gotz does not teach fibers having surface areas of 3 m² or more.

Vercesi does disclose a process for making a uniform dispersion of aramid fibers in a polymer, and the disclosure of Vercesi does include fibrillated aramid fibers. However, Vercesi does not disclose any processes for making articles from the dispersion by blow-molding. Vercesi only discloses processes for making a master batch. As for applications, Vercesi merely states that the “masterbatch can be used as a source of fibers for reinforcement purposes”. The processes disclosed in Vercesi provide uniform distribution of the fibers in the polymer, which was known to cause difficulty in conventional processes.

Applicants further submit that the combination of the teachings of Vercesi and Gotz would not yield Applicants’ claimed invention, because the combined references do not teach that the present compositions, containing fibrillated aramid

fibers, can be blow-molded to make solid articles. Such compositions are not disclosed or suggested by the combined teachings of Gotz and Vercesi.

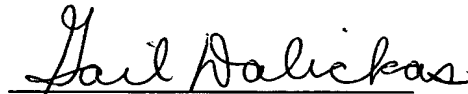
Moreover, the disclosures of Van Ert do not cure the deficiencies in Gotz and Vercesi. Van Ert discloses a method for forming a preform for a molded part, from waste plastic material. Van Ert discloses that the method includes positioning waste plastic material within a blank, heating the blank and compressing the blank to make the perform. The method can also include "selectively positioning reinforcing fibers within the blank". However, Van Ert does not disclose blow molding. Applicants respectfully submit that blow molding requires different physical properties, such as rheological properties, than other molding processes. The present invention provides thermoplastic materials that are fiber-reinforced, with fibrillated aramid fibers, and are suitable for blow molding. As disclosed in the specification of the present application, on page 9, lines 8-10, the use of the fibrillated fibers according to the processes of the present invention can impart sufficient melt strength for blow molding to polymer compositions that may not be designed for or conventionally considered appropriate for blow molding.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that the present application is in condition for allowance. Accordingly, withdrawal of all rejections of claims 1 and 3-9 and issuance of an Notice of Allowance is respectfully requested. In order to expedite disposition of this case, the Examiner is invited to contact Applicants' representative at the telephone number below to resolve any remaining issues. Should there be a fee due which is not accounted for, please charge such fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

Dated: 10/29/04

Respectfully submitted,



Gail Ann Dalickas
Attorney For Applicants
Registration No. 40,979
Telephone: (302) 984-6282
Facsimile: (302) 778-6282